ITEMS OF INTEREST.

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Shots from the Profession.

HOW ANÆSTHETICS PRODUCE ANÆSTHESIA.

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[Read before the Iowa Dental Society, Council Bluffs, May 6, 1884.]

Continued from July Issue.

In order the better to understand how anæsthetics produce anæsthesia, let us see in what plane of organization they belong. Chloroform and the ethers require alcohol for their production, and alcohol is always produced from the decay of saccharine matter. Glucose, honey, grape and fruit sugars are isometric in their formation, and composed of C_{12} H_{24} O_{12}, and are as high in the plane of their organization as vegetable life can raise them; any change from this must be in a downward direction.

Fermentation is a rotting process wherein this high state of organization begins its downward march toward the inorganic state.

Chemistry has taught us how to arrest this class of matter while on its way back; but arrest it when and where you may, it will fall the remainder of the way.

Alcohol, ether, chloroform, bromoform and iodoform are closely related, and each is derived primarily from the decay of Sugar, and is matter arrested on its way from the organic to the inorganic condition.

Like sugar and starch, the alcohols are all composed of C. H. and O. The hydrogen atoms are always even in number, and exceed by two double the number of the atoms of carbon, while the oxygen is always unity. We have

Methylic alcohol	C	H_4	O, wood naptha;
Ethylic "	C_2	H_6	O, spirits of wine;
Propylic "	C_3	H_8	O;
Butytic "	C_4	H_{10}	O;
Amylic "	C_5	H_{12}	O, fusel oil,

and so on, embracing about twenty different Ethylic Alcohols.

In the organization of sugar, starch, cellulose and other amylaceous matters the H and O in their union with carbon, are in the proportions that form water (H_2 O) in all the alcohols the H is greatly in excess of the O, and it is this disproportion that makes all the alcohols such an easy prey to oxygen.

The ethers are made from ethytic alcohol by distilation with an acid that still further increases this disproportion :

Ethyl, $C_2 H_6$ O (alcohol),

Ether, $C_4 H_{10}$ O,

so that the ethers of whatever name, are composed of elements in such proportions to each other as to be of the most changable character ; the hydrogen is bound to have oxygen at whatever cost. Here is the key to unlock the mystery.

There is another class of compounds nearly related to the ethylics, where the oxygen is replaced by chlorine, bromine or iodine, but the carbon and hydrogen are each unity, and the chlorine, bromine or Iodine always three, and are as eager for hydrogen as the hydrogen is for oxygen in the ethylics.

In the ethers the hydrogen is so in excess of the oxygen that they de-oxydize whatever can supply it withwhich they come in contact. Both classes are so out of proportion in their character that they decompose and absorb from the blood or tissues, the elements that will let them down to the plane below, where the compounds newly formed shall be satiated, and form stable compounds.

These are the reasons why anæsthetics produce anæsthesia. Let us now consider how they do it.

Chloroform, bromoform, and ether are fluids, but so nearly related to the gases that they are ever ready to assume the vapor condition when exposed to the action of the air.

Nitrous oxide is a gas, but so nearly related to a fluid, that it is easily reduced to that state. Chloroform has no oxygen, ether and nitrous oxide but a small proportion.

Ether and chloroform when inhaled, are in the form of gas, or vapor, and so weak are the attractive forces among the chemical constituents, that before they are used they are ready to change their form from a fluid to gas, and after they are used at the temperature of the system the gases are decomposed and form new combinations.

That we are not alone in expressing such an opinion we quote from Copland's great work on Practical Medicine from a foot note, page 405, vol. 3 : "We regard the effect of ether and alcohol, when inhaled in the form of vapor at least, as exactly identical,(?) and both occasion chiefly by the carbon and hydrogen, which enter so largely into their composition, combining with the oxygen of the blood, thus substituting carbonic acid and water for the stimulating portion (oxygen) of the vital fluid."

Bloxam's Chemistry Page 506 says of alcohol "under the influence of oxydizing agents, it first parts with two atoms of hydrogen, and it is converted into aldehyde, and afterward absorbs an atom of oxygen, yielding an acid.

Alcohol is C_2H_6O.

Acetic acid, $C_2H_4O_2$.

By the decomposition of alcohol two parts of the H unite the O forming H_2O or water, then by the absorption O_2 by the aldehyde and we have Acetic acid $C_2H_4O_2$.

We have every reason to believe that a similar action takes place in the vapor of ether after it is inhaled. Ether is $C_4H_{10}O$.

Take two parts of the H and the O, and water is formed, now by the addition of O_4 and we have $C_4H_8O_4$ or 2 $(C_2H_4O_2)$ or two parts of acetic acid.

Chloroform is C H Cl_3 and on being decomposed, the gases while in the nascent state would be $C+H+Cl_3$. The H will unite with one part of the Cl to form Hydro chloric acid; and we shall have C Cl_2 left.

Chlorine has such an affinity for hydrogen that it will decompose water (H_2O) to procure it.

One part of water on being decomposed will furnish two parts of hydrogen to unite with Cl_2 that we had left, and will form two more parts of hydro chloric acid. We now have three parts of this acid in the blood for each part of chloroform used. The carbon will deoxydize the blood to procure oxygen to form carbonic dioxide (C O_2); thus rendering the blood venous. Bromoform (C H Br_3) is closely related to chloroform, both in chemical formula and the mode of its decomposition and the reformation of an acid compound.

Iodoform in chemical formula C H I_3 is closely related to both chloroform and bromoform, but it is a solid and not inhalible so as to be used as an anæsthetic. Nitrous oxide (N_2O) is a gas when inhaled and is readily absorbed into the blood where it undergoes a change, and nitrous acid formed by the absorption of two parts of oxygen $N_2O+O_2 = N_2O_3$ = nitrous acid, acetic, hydrochloric, bromic, and nitrous acids are respectively formed in the blood according to the anæsthetic used and at the expense of the water and oxygen of the blood. Instead of oxydizing the blood as does the air we inhale, they each and all *de*-oxydize it, depriving it of oxygen, making it venous blood in place of arterial, and also acid in its character instead of alkaline. The fibrine of the blood is held in a soluble condition only while the blood is alkaline, in its chemical reaction, so it matters not which of these acids is there formed, the blood is rendered too thick for free circulation, and congestion is the result, in which condition the heart and brain are the first to suffer.

The tissues are deprived of oxygen so essential for the normal break down to furnish nerve force; the heart and brain are deprived of the necessary energy to carry on vital action, and the condition is like the telegraph line without the electricity to transmit the message.

The thick condition of the blood incident to this acid condition, doubles the labors of the heart; and the want of nerve force incident to the de-oxydizing of the blood renders the heart unable to normally perform its duties, the sensations are not conveyed to the brain for want of energy to transmit them and anæsthesia is the consequence. And is it any wonder that Prof. Erichsen in his work on Surgery says: "When fully anæsthetized, the patient is on the very verge of death."

It matters not what anæsthetic is used, anæsthesia is well on the road toward death, and every Physician or Dentist who adminsters them, should realize the danger there is to the patient; and no one has sufficient skill to use them with perfect safety. Their use should be confined to capital operations in surgery. A partial paralysis produced by pressure on the periphery of the trifacial nerves for about two minutes, in most cases will obviate the necessity as well as the demand for their use in extracting teeth.

DR. RIGGS SPEAKS.

[From Southern Dental Journal.]

HARTFORD, CONN., April 24, 1884.

Dr. B. H. Catching—

DEAR SIR: I have mailed you quite a long, and I fear a tedious letter, and yet I have thought best to send you a copy of the old letter referred to. You spoke of my attending the Southern Dental Association and giving a clinic. I never knew a single dentist convinced by simply *seeing* a clinic, but if they can see the mouth two weeks or a month after, according to the gravity of the case treated, they can then judge of its worth as a treatment. I have given clinics in public, to practicing dentists for years, and I cannot recall an instance where a convert has been made, but on the other hand violent opposition frequently.

What can they tell by witnessing a clinic? They cannot tell what its effects will be, or what its value.

I am weary of reaching the profession in this way. They see a clinic and say, "That is easy enough; I can do that," and they straight-way rush into their offices and treat the worst case they can find. They know all about it. The case does not get well, and they turn and pronounce it a humbug, then rush to conventions and cavil and condemn the treatment. This treatment cannot be learned in a

day or a year; the hand must be trained after the brain has grasped the rationale of the operation. The hand must be taught that delicacy of touch, so as to be able to distinguish disease from healthy conditions, to know the difference of feel of tartar or dead bone, or live tissue, from dead or diseased parts—to know when it has gone to the line of health and gone there with a clean, perfect manipulation.

The eye is of no use to him. A sea of blood wells up over the tooth, and he is at his wit's end; but he pokes away, hoping something will turn up. *And it does turn up.* He finds he has blundered and made a mess of it, and then he turns and rends one of the most beautiful beneficient surgical treatments or curative processes ever given to the profession. Again, a correct manipulation is all important. With proper instruments for the operation, sufficiently firm so as not to slip over or spring over the granules of deposit on the tooth itself, and also to feel the edge of the alveolus to ascertain its condition, for its absorption is not always clean but uneven, dipping down on one plaee and leaving it untouched in another. The *manipulation* is peculiar, and has grown out of the *necessity* of *wounding* the gums as *little* as *possible*, and can only be learned from clinical teaching, *unless* a man wants to travel over the long and weary road that I have passed. A person with any surgical ability can learn more of the proper manipulation and treatment in one *illustrated clinic*, than he can dig out by himself in *five years*. But many of the objectors to this treatment are unwilling to admit that they know nothing of it. Go to the text books used in our colleges to-day, and see what they say. Not a line of this treatment or theory is given.

How much intelligent *clinical* or *theoretical* teaching is given in our schools on this theory and practice?

Some of them give us none at all, but violently oppose and ignore it altogether. Some, to their credit, try to teach it, but give inadequate time and instruction on the subject, so that rarely a student is competent to treat any but the first stage of the disease. How is it wtth our journals? Some few endorse the new theory and are candid in giving both sides to writers on it. Some have not until lately admitted replies to adverse criticisms, and one editor plainly told me he believed it to be a—— humbug, (I omit the adjective) yet that same journal beares on its pages, *unwittingly*, the strongest early evidence of the efficiency of the treatment. But unhappily the prejudices of men are often stronger than their love of right. They are to be commiserated rather than censured. * * *

[No dentist can afford to be ignorant of the nature and treatment of this disease. But all will find that much study and manipulation is necessary to skill.—*Ed. Items.*]

THE DECAY OF CHILDREN'S TEETH.

LOUIS OTTOFY, D.D.S., OTTOFY, DAK.

[Read before the Illinois Dental Society.]

This paper is not intended to bring before you the causes which lead to dental caries, nor to favor either the acid, chemical or septic theories but simply to place before you for thought and discussion a few facts gleaned from the examination of the teeth of 355 pupils of a public school; children ranging from five to fifteen years in age, embracing the period of the eruption of the permanent teeth, children who represent the different nationalities, nervous tendencies, hereditary defects, etc., of the future generation. The points which these figures bring before us, are intended, if possible, to lead us toward ascertaining at what age, caries is most frequently in its incipient stage, and what outside influences make it more prevalent at one age than at another, in order that, if such a period exists and can be ascertained with any reasonable amount of certainty, the necessary precautions might be taken rather to prevent the occurrence at that time, than to remedy the ravages later.

This undertaking was partly actuated by the remark of Dr. Patrick at our last meeting, that "if you will take the trouble to examine the teeth of school children, you will perhaps be surprised to find that the great majority are endowed by nature with good teeth, and by far the largest number of mankind will be found to have good teeth up to the age of puberty, if examined." Though we do not fully agree with the Doctor in the above statement, if we compare the results of this report with our acquaintance with the prevalence of caries as seen at the operating chair, it will be in reality surprising to see what a large per centage of teeth are sound before puberty.

A large number of these children were of Norwegian, Scandinavian and Canadian parentage, and on the whole, their teeth were found to be no better than the teeth of the American children. In practice I have also a large number of foreigners, who have come from the north of Europe, a great many of them recent arrivals, whose teeth were in just as bad a condition as any I have ever seen. In my former place of practice I had a great number of the middle class of Germans, whose teeth were, as a general thing, in a poor condition. From what I have observed of the teeth of foreigners in this country, I am convinced that the teeth of the American people are not degenerating, which is the common impression among the people. The saliva was tested, the condition of the teeth carefully examined and tabulated. Of the 355 pupils, 192 were males, and 163 females. Of the whole number but thirty had perfect, sound and complete sets of teeth; which sum is eight and a half per cent. of the whole number examined.

Of the males 12½ per cent. (24 in number), and of the females 3½ per cent. (6 in number), had perfectly sound teeth. The number of teeth examined, their cavities classified and tabulated is as follows:—

Sound Teeth	6,097
Carious and Decayed Teeth	2,142
Total	8,239

or, 64 per cent. sound and 36 per cent. carious. Of the 2,142 carious and decayed teeth but 35 have been attended to by filling or otherwise, and about five per cent. had been extracted. The number of teeth equally divided would give each child 17 sound and 6 carious teeth.

As the school board objected to the examination, unless the children or their parents received some equivalence for the inconvenience, etc., each pupil was given the necessary advice in each particular case, orally, and received the following blank properly filled out:—

EXAMINATION OF THE TEETH OF THE PUPILS OF THE

GRAND FORKS PUBLIC SCHOOLS,

CONDUCTED BY DR. LOUIS OTTOFY, DENTIST, GRAND FORKS, D. T.

No..... DATE.....1882.

The following is the condition of M..... ..... 's teeth and mouth as observed at the examination to-day. There are.....sound teeth,.....decayed or unhealthy teeth and.....fillings.

The teeth are.....regular and the gums.....healthy.

Children's teeth should be examined by competent dentists, at least once in six months but in many cases much oftener. They should be cleansed with a brush and water dipped in prepared chalk. Cleansing is most necessary after meals, especially after the last meal of the day. The teeth should be cleaned three times a day, but if it is done only once let it be after supper.

The number of pupils who consented to the examination comprised 90 per cent. of the total attendance. The saliva in each and every instance was carefully tested with an excellent kind of litmus paper, and all tests were made during the hour preceding the noon-day meal.

The Chemical reaction was as follows:—

At	5	years of age	75	per cent.	neutral,	25	per cent.	acid and	0	per cent.	alkaline.
"	6	"	" 52	"	"	48	"	"	0	"	"
"	7	"	" 67	"	"	33	"	"	0	"	"
"	8	"	" 81	"	"	17	"	"	2	"	"
"	9	"	" 66	"	"	32	"	"	2	"	"
"	10	"	" 76	"	"	18	"	"	6	"	"
"	11	"	" 79	"	"	21	"	"	0	"	"
"	12	"	" 83	"	"	17	"	"	0	"	"
"	13	"	" 70	"	"	26	"	"	4	"	"
"	14	"	" 90	"	"	10	"	"	0	"	"
"	15	"	" 65	"	"	29	"	"	6	"	"

The average of the chemical reaction between the ages of five and fifteen is 73 per cent. neutral, 25 per cent. acid, and 2 per cent. alkaline. The observations in regard to the effect of the different reactions of the saliva upon the teeth, tend to show that, as a general rule, in cases where the saliva is neutral the prevalence of caries is

below the average, and on the other side in cases of both the acid and alkaline reactions, caries, as a rule, is above the average in frequency.

We do not wish to question any of the theories of decay, and we believe that under certain circumstances caries does take place with entirely alkaline surroundings; but our observations lead us to the conclusion that—at least at the age which we are considering—the neutral reaction of the mixed saliva is the true and natural condition of that fluid; and further that both the acid and alkaline reactions are unnatural, and that the teeth surrounded by these unnatural fluids are more subject to caries, whether because of the chemical reaction of the fluid or not, we are not prepared to state. The general impression prevails that an acid condition of the saliva is injurious, and an alkaline reaction healthy, as far as that concerns the teeth, because the alkaline reagents will neutralize the acids in the mouth, and thus arrest, partly at least, their injurious influence upon the teeth; this idea is entirely unfounded and erroneous. By testing the condition of the mouths of adult patients at the chair, I have been frequently surprised to find an alkaline reaction where the circumstances would warrant the presence of acids, placing the expectation upon the above idea.

The density of the enamel was found to vary considerably at the different ages, the average percentage as shown by actual examination, during the ages from five to fifteen years, is 46½ per cent. hard, 44½ per cent. medium and 9 per cent. soft, which shows that the density of the enamel is somewhat below the average during the eruptive period.

TABLE SHOWING DENSITY OF ENAMEL AT THE DIFFERENT AGES.

Age.	*Hard.*	*Medium.*	*Soft.*
5	37½ per ct.	62½ per ct.	0 per ct.
6	36 "	52 "	12 "
7	26⅔ "	56⅔ "	16⅔ "
8	38 "	49 "	13 "
9	35 "	47 "	18 "
10	45 "	49 "	6 "
11	48½ "	48½ "	3 "
12	62 "	30 "	8 "
13	62 "	26 "	12 "
14	70 "	23 "	7 "
15	53 "	41 "	6 "

The presence of salivary calculus amounts to 8½ per cent. in children, the greatest number of cases being at ten years, and in most of these cases the secretions proved to be of an acid reaction. As a general rule with soft, chalky teeth, poor health, perverted salivary secretions and diseases of the soft tissues were concomitant.

TABLE SHOWING PRESENCE OF SALIVARY CALCULUS AT DIFFERENT AGES.

Age.	*Presence of Calculus.*	*Absence of Calculus.*
5	14 per cent.	86 per cent.
6	8 "	92 "
7	7 "	93 "

Age.	*Presence of Calculus.*	*Absence of Calculus.*
8	4 per cent.	96 per cent.
9	3 "	97 "
10	17 "	83 "
11	11 "	89 "
12	8 "	92 "
13	16 "	84 "
14	10 "	90 "
15	6 "	94 "

The diseases of the soft tissues were confined to irritation and inflammation of the gums, mostly caused by the presence of calculus; the diseased cases amounted to five per cent. and were most prevalent at the age of eleven years, when eleven per cent. of the children were affected.

TABLE SHOWING THE PRESENCE OF DISEASES OF THE SOFT TISSUES AT DIFFERENT AGES.

Age.	*Diseased Condition.*	*Healthy Condition.*
5	0 per cent.	100 per cent.
6	4 "	96 "
7	3 "	97 "
8	0 "	100 "
9	2 "	98 "
10	6 "	94 "
11	11 "	89 "
12	2 "	98 "
13	0 "	100 "
14	10 "	90 "
15	10 "	90 "

Irregularity of the teeth was most marked at eight years, at which age 40½ per cent. of the cases were found to be irregular. The average irregularity amounted to twenty per cent.

TABLE GIVING PERCENTAGE OF IRREGULARITY OF THE TEETH.

Age.	*Irregular.*	*Regular.*
5	0 per cent.	100 per cent.
6	8 "	92 "
7	26⅓ "	73⅔ "
8	40½ "	59½ "
9	2½ "	97½ "
10	18 "	82 "
11	35 "	65 "
12	8 "	92 "
13	21 "	79 "
14	33⅓ "	66⅔ "
15	28 "	72 "

Between the same ages the following was the percentage of sound permanent teeth :—

Inferior incisors	100 per cent.	sound.
Inferior canines	100 "	"
Superior canines	100 "	"
Inferior bicuspids	97 "	"
Superior bicuspids	95½ "	"
Superior incisors	66 "	"
First molars (sup. and inf.)	34 "	"
Second molarls (sup. and inf.)	30½ "	"

and

Thus it will be seen that the second molars are more frequently

carious before the age of puberty than the first molars, which latter, I believe, bear the reputation of being the most frequent victims of the ravages of caries. The above computation derived from the examination papers tends to show, that caries attack the teeth in the following ratio: Oftener the second molars, then the first molars, next the superior incisors, superior bicuspids, inferior bicuspids, and lastly the canines and the lower incisors, which latter two classes are least frequently attacked.

The prevalence of caries is more frequent in girls than in boys. Its presence in girls is 37 per cent. at five years, thence it increases gradually till it reaches its maximum 76 per cent. at seven years, then it declines until eleven years are reached, whence it remains almost unchanged up to the fifteenth year; at six years caries was less frequent in girls than in boys, and at twelve years it was the same in both; at all other times caries was from two to thirty-four per cent. more frequent in girls than in boys. The ratio of increase and decrease in boys was the same as in girls, with the above mentioned exceptions. The total average of caries at all ages in children is 33.2 per cent. in males, 40.7 per cent. in females, and 36.6 per cent in both. This, therefore, shows that thirty-six teeth out of every hundred are carious before the age of fifteen years, and that the greatest number of these 36 have had their incipient stage of caries during the period from seven to ten years.

TABLE SHOWING THE PREVALENCE OF CARIES AT THE DIFFERENT AGES DURING THE ERUPITVE PERIOD OF THE TEETH.

Age.	*Per Cent. in Males.*	*Per Cent. in Females.*	*Per Cent. in Both.*
5	16	37½	29
6	40	33½	37
7	42	76	56
8	41⅓	43½	42½
9	38	42	39
10	33	34	33½
11	24⅓	25	24½
12	26	26	26
13	23	29	25
14	22⅓	30	26
15	25	30½	27½

RESUME.

In recapitulating the subject of our paper we are led to the following conclusions:—

1. That a neutral reaction is the natural chemical reaction of mixed saliva.

2. That, though unnaturally reacting saliva, *i. e.* either acid or alkaline, may not be the direct cause of dental caries, either is undoubtedly favorable to the propagation of septic growths, or at least conducive to their maintenance.

3. That the greatest percentage of acidity in saliva is at the age of six years, which shows its destructive influence the next year at seven, when the density of the dental tissues is at its minimum and caries at its maximum.

4. That at eight years the most irregularity is noticeable, followed at ten years with increase in the presence of salivary calculus, and at eleven with increase in diseases of the soft tissues; therefore,

5. *Although the teeth require at all times scrupulous attention and care, they require more care during the eruptive period, from five to fifteen years than at other times, and during this period the time from the sixth to the eleventh year is important, but the most important period of all is at the age of seven years.*

P. S.—(Since the above paper has been read and discussed, I have made more examinations, and though the above so far as it has gone is correct, there are some things in it which should have been put in a different shape. Where the percentage of decay is given, all the teeth of all the ages—five to fifteen—have been counted thus not giving the exact number of any particular age, but only the average at all ages. From other tables, though of smaller numbers, I find that at fifteen years the relative condition of the first and second molars is as follows:—

First molar, thirty-five per cent. sound.

Second molar, forty-two per cent. sound.

In the paper the statement is made that between the ages of five and fifteen there are thirty-four first molars and thirty and one-half second molars out of every one hundred of each, sound. This statement is correct so far as it asserts that if a certain number of children were promisciously examined, there would be that number found in a sound condition. But later examinations have developed the fact to me that if these same children were to be examined *when at the age of fifteen*, the ratio would have changed so much that above seven per cent. more of the first molars will be decayed than of the second molars.)

Diet is largely responsible for the condition of the teeth. I have found people who live on cooked-up sweets, such as lemon pie, etc., and with a tendency to mental activity and hard study in school, have, as a rule, bad teeth; while children who live on milk and coarse food have better health, and consequently sounder teeth. Ice creams, blanc-mange, etc., are very palatable; they slip down easily, depriving the teeth and saliva of their employment. If they would take bread plain or in hard crusts that would require chewing, and eggs plain (not in cake), it would be better.—DR. W. N. MORRISON, *St. Louis.*

BEST METHOD OF CORRECTING IRREGULARITIES.

DR. WM. N. MORRISON, ST. LOUIS, MO.

In regard to the corrections of the simpler forms of irregularities, in nearly every case an expansion of the arch will correct the difficulty, this is effected by ordinary wooden wedges. For the more difficult cases, where we require a great deal of force to be applied, I attach my jack-screws with very thin annular bands of platinum, cemented with phosphate to the crown of the tooth to be removed, and to one or more on the opposite side where the most direct force can be exerted. My jack-screws are made of a platinum tube, plate guage about 27, and drawn to receive a steel screw 15 guage plate. Soldering the platinum band to one end of this tube, these bands are cemented with phosphate to the crown of the teeth, being carried up well to the process; the next day they can be tightened, and the pressure applied daily, until the arch, or irregular teeth, are forced into proper position. Where general expansion is desirable, after the jack-screws are well secured in position, wooden or rubber wedges can be used upon the spaces of the adjoining teeth.

In my practice I prefer the jack-screw with supplemental wedges, for nearly every case, from the fact that it is the most efficient instrument, in the first place, and I can exert power when I need it, and there are no wires, strings or bars to slip just when I can least afford to have them do so; and secondly, because it allows the free use of the teeth in their natural position of occlusion, or the striking of one firmly upon the other, which relationship is most important to observe. With such an instrument at our command, the extraction of a permanent tooth should be exceptionally rare. For so-called regulating purposes, however, I regret to say, such practice is resorted to by some very worthy dentists. Some of the worst cases of irregularity thus treated, I have observed in the mouths of children of dentists, where, we know, their best judgment and greatest skill would be bestowed.

Several years ago, I saw a beautiful young lady, the daughter of a very worthy dentist, who had lost her lateral incisors by her father's own hand, and what was my horror, ten years later, to see the mouth of a younger sister mutilated in the same manner. In both instances their mouths were greatly marred, the articulation entirely unnatural, and nearly space enough left for the accommodation of the teeth that were gone, where slight wedging would have given them abundant space, and preserved a complete arch of teeth.

Case number 1.—Master L. H., thirteen years of age, with all permanent teeth save the right upper bicuspid lost, and where the under jaw closed anterior to the upper. The molars occluding perpendicularly upon each other, and lengthened so that the superior incisors

were an eighth of an inch too short, when they were advanced to the proper line of occlusion; all being the result of improperly constructed regulating appliances not caping the molars, which would have prevented their lengthening. Such were the appliances constructed by two other dentists, and the case abandoned by both as beyond remedy. To correct this case, I embraced within one band a molar and bicuspid, and the lateral and central incisors; and resting the bar along inside the molar, and pressing on the palatine surface of the lateral incisor by continued force of the jack-screw, they were carried forward until the lower teeth dropped under them in their normal positions; but, when the teeth were in their natural position, the crowns were not long enough to catch, or come over the lower incisor, so I adjusted thin platinum shells to supplement their length and cemented them on. By directing the patient to exert a good deal of muscular force, I hope to have the back teeth settle sufficiently to allow the incisors to maintain the proper relation with each other.

Another case is that of a young lady, Miss K. S., twenty-five years of age, whose right superior canine was never erupted, and the space between the lateral and first bicuspid was about one-sixteenth of an inch. The point of the canine made its appearance well under the root of the lateral, and just forward of the bicuspid, pointing inward. I made a very similar apparatus, adjusting the platinum of the first molar on the right; and as it and the bicuspids had large amalgam fillings, they were very much weakened, and I wished to embrace the three crowns within one loop to retain the fixed point from which to exert the force. I then adjusted the band to the lateral incisor with a bar resting along the palatine surface of the centrals, and placed the boss on the bar about opposite the right third of the right central; the lateral on the left, being a pulpless tooth, of course had to be shielded from any pressure, as the crown was very weak, which was accomplished by leaving rubber wedges between the mesial and distal spaces of the lateral. In three weeks' time, by means of jack-screw force, and wedges, I had gained sufficient space for the growth of the canine, and am now waiting for nature to send it into its new position, intending to keep the space open with wedges until the new canine comes down to its proper place.—*Ill. Trans.*

To stop hemorrhage, which sometimes follows the extraction of a tooth, fill the socket with cotton, in the fibers of which is mixed dry plaster of Paris. Place over it a wad of cotton and bite down on this till the blood has saturated the plaster and it has become set. Some mix the plaster in water first and work into the cotton.

WHEN YOU DO NOT KNOW WHAT TO DO, DO NOTHING.

[In New York State Convention.]

E. PARMLEY BROWN.

Just to encourage the young men, I want to make a few remarks in regard to the principle that is often mentioned in medicine: "If you don't know what to do, don't do anything." I had a case where I found pain around and between the molars. I took out the nerve canal fillings, which were imperfect, and refused to fill the tooth, not knowing why I should.

I filled two molars in a young lady's mouth the other day, the nerves alive and not exposed. In a week she came in with badly swollen face. I thought I would be able to diagnose dead pulp. I tested in every way, but could not convince myself there was any. After searching carefully, and bringing the inflammation to an abscess and discharging, I discovered there was some dead bone, but why it died I don't know to this day. I found that the cause of all the trouble. I removed the bone and effected a good cure.

ATKINSON, W. H.—This brings to mind what was seen in the daughter of a member of our own profession, for whom it had been decided upon to extract a lower first molar. The child was a special pet of the Emperor of Brazil. Speyer was the father's name. There was a swelling on the lower jaw, and considerable pain and inflammation. She was brought to me, but I was not satisfied. As Dr. Brown says, I could not satisfy myself that the pulp was dead, and even if it had been dead it would not be an excuse on my part for extracting the tooth. I examined more thoroughly and finally made an opening, and it proved to be necrosis in the dense part of the bone—the base of the jaw; and he says he didn't know why, and I never found anybody who did. We have the first step, and we will set that down as settled. I opened into the bone and peeled up the soft parts, but could not find a sequestrum. Suffice it to say, after a few weeks I became convinced there was one corner where the line of demarcation was set up. I took out six pieces of bone and the scar healed with very little show. I greatly commend the caution instanced by Dr. Brown. It is a custom that has not always been exercised in such cases. A demoniac custom is to distroy the six year old molars, and it prevails so generally that it is an exception to see a man careful. He jumps at conclusions and twiches them out without knowing how it ought to be done. That was the case called to my mind by the remarks of Dr. Brown, and it is worth the time if it will save that kind of iconoclasm which, as the doctors used to say. "Dead men tell no tales!"

J. G. AMBLER.—A case exactly in point occurred yesterday, be-

fore I started for Albany. A lady came into my office for whom I had never operated, and wished me to extract the second molar on the lower jaw. I looked at it and said there was nothing the matter in the tooth. "Why should you have it out?" "It pains me at the least touch." I sounded it, probed it, and satisfied myself there was vitality there, no lack of vitality, and there could not be any dead pulp; and after probing for some time she insisting that the least touch gave her intense pain. I took a sharp excavator and pierced the gum where the wisdom tooth had been taken out about eighteen months ago. The gum looked healthy, but I touched something. It yielded to the point of the lancet and on going down she said—"that's the pain." I got a little deeper and took out of that space the remains of the wisdom tooth. This had remained there, the gum healing over; it was in close proximity to this molar, and the pressure upon the gum created the pain which she supposed was from the molar tooth. In order to satisfy myself more fully as to what caused the pain, I asked her to press her tongue as before against the tooth, which she did, but without causing pain.

INCOMPATIBILITY.

DR. C. B. RAHLAND, ALTON, ILL.

In order to get the best of which the dentist is capable, the relations between the patient and himself must be harmonious. They must be *en rapport* with each other. For individuals of this class, he finds it a pleasure to work. The confidence established reduces the fatigue of lengthy operations to the minimum. Both mind and body work harmoniously together, under the apparent stimulus of a pleasurable sense of power, of having both work and patient well under control. Under such circumstances, the operator is at his best, and after hours of work feels only a healthy fatigue. But not so with the incompatible patient. Here the relations are entirely inharmonious. With the exercise of all his nerve force and will power, the dentist finds himself baffled in his efforts to subject, control, and hold his patient. If he even succeed partially, it is with the expenditure of such an amount of nervous energy as is absolutely exhausting. He is wearied, worried and kept at such a tension, that mind and body both suffer. He feels that he is called on not only to do his work, but fight his patient as well. The antagonism between the two is sometimes almost palpable, and the operator dismisses his patient, dissatisfied, and exhausted. Here the will power and nervous energy are about equally balanced between the two. There is no especial absorbtion of vitality, no interchange of current to speak of, only a clashing of nervous forces, a psychic battle, in which the combatants engage,

and retire, worn out, mentally, from sheer, hard work. Now, when in addition to this condition of incompatibility, the patient presents himself in a state of complete mental and physical prostration, we have a combination of influences, most injurious in their effects, most trying to the endurance and health of the operator. And such cases are unfortunately not at all rare. Poor, weak, trembling fractions of humanity, made so, perhaps, by days and nights of continuous suffering, bereft of all will power, courage and endurance—mere aggregations of quivering nerves, grasping at every straw for help, leaning on every reed for support, suspiciously watchful of every move of the dentist as though it were the significant prelude to inquisitorial horrors, pitiful, uncontrollable, exasperating, veritable physical sponges to absorb strength—these are the kind that tax the endurance and self-control of the operator to the utmost, and leave him weak, nervous and exhausted, unfitted for hours after, for the ordinary duties of the chair; these are the kind that not only exhaust by simple wear and tear, but actually seem to absorb ones very vitality. Modifications of this class meet us at every turn, and their injurious effects can only be met by judicious self-control. It, of course, would be much to the dentist's advantage physically, if he could avoid such subjects, but as from the very nature of the case, he very rarely can exercise any choice in the matter, he must hold himself and his emotions with an iron hand well under control, keep cool and calm, and, to use a common but very appropos expression, never by any means, allow himself to be "driven off his base." Therein lies his safety. For, should the vexations of the situation once get the upper hand of him, the clashing influences would only keep aggravating each other, and his usefulness for that particular case, be destroyed. Such experiences will find their partial antidote in bathing the hands and head, especially the occiput, in clear cold water; in a brisk walk, a turn in the open air, or any light exercise or occupation that may tend to restore the self-poise, but never stimulants. As the influence of such cases is always increased by personal contact, care should be taken to keep a napkin, or the rubber dam, interposed between the hands and face of the patient. All subjects in this condition seem to be in a specially favorable state to actually draw strength from the operator, and should the operation be a prolonged one, the dentist, aside from mere considerations of good taste and comfort, will find it to his advantage to observe this rule. When possible to so arrange, work for such patients should be followed, as suggested above, by light work in the laboratory, around the office, or out of doors, and should never immediately follow or precede a full meal. The influence of such patients on us depends much on our being in a positive condition toward them.—*Ill. Trans.*

SCURVY: ITS PREVENTION, SYMPTOMS AND TREATMENT.

[The following report of Dr. Kershner is perhaps as vivid a discription as can be found.]

A very able and interesting circular was issued by the Bureau of Medicine and Surgery in 1880 to the Rodgers, which left San Francisco in June of that year to search for the unfortunate Jeannette, about which considerable anxiety was felt at the time. This circular bears the title, "Sanitary Instructions for the Information and Guidance of the Jeannette Search Expedition," and embraces as complete a list of prophylactic measures against scurvy as it is possible to find. The regulations embodied in the report embrace all of the more modern advances in hygiene, and give very instructive information as to the preparation and value of certain articles of diet. In the course of the circular we find the following: "*One of the most valuable anti-scorbutic substitutes for fresh succulent vegetable is lime juice,* which should be supplied the men daily in the quantity of one ounce mixed with an equal weight of sugar. It is recommended that the issue of lime juice begin after leaving port, when the supplies of fresh vegetables have been exhausted, and that an officer should see that each man has taken the prescribed quantity. This last suggestion is important, since, if it is left to the individual caprice or fancy, it may be neglected." And, again, "The *indispensable necessity of lime juice* in the sledging parties, and the difficulties of carrying and preparing it for use, induced me to suggest the propriety of combining the juice and pemmican in the proportion of one ounce to the pound of the latter. A large quantity of this preparation has been furnished for use in the sledging parties, and it is believed that great advantage will accrue from it. The pemmican is greatly improved in taste and flavor, and will, I believe, be more assimilable. This is an important modification, as there are persons who cannot eat the ordinary article."

"No cases of scurvy occurred before the 25th of January, 1882, that is, 56 days after the ship was burnt, during which time, no doubt, the peculiar agencies which are supposed to favor the appearance of scurvy were steadily operating on our men. Those attacked were by no means the weakest among our crew, nor were they intemperate men, with the exception, may be, of two, who, however, did not suffer severely. Whatever the causes of scurvy may be, in this case the poor hygienic surroundings played a most important part in the causation of the disease. If we take into consideration that a body of men, already more or less fatigued by a long cruise, were thrown entirely out of their usual mode of living, not only deprived of their accustomed articles of diet, but also compelled to live in filthy houses, without ventilation, and only artificially lighted, we cannot wonder at the outbreak of scurvy, and must only feel surprised that the disease presented so mild a character.

The first case that came under my notice was that of Mr. De T., ship's carpenter, who reported to me, January 22nd, that his gums were sore, and that he had been spitting mouthfuls of blood during the day and night. The blood was oozing principally from around the second molar tooth on the left side of the upper jaw. All attempts to stop the bleeding proved futile, snow at several degrees below zero being used to no purpose. Next morning, the hemorrhage still continuing unabated, and the patient becoming considerably debilitated, I, found him looking very pale, his complexion sallow, the sallowness being most marked over the forehead and cheeks; his gums were spongy, presenting a granular appearance, and were already becoming detached from the neck of the teeth; their color was also altered; they had become purplish, and in some places almost black. The only styptic at my command being the actual cautery, I resolved to cauterize the bleeding surface with a button-hook heated to a red heat over a seal-oil flame. While heating the instrument, and when this was almost ready, De T. suddenly announced that the bleeding had ceased, probably from nervous shock. Some powdered alum was afterward used, and the gums were painted with tincture of iodine twice a day for the first two or three days, and there was no recurrence of the hemorrhage; the gums, however, continued sore for some time, and bled slightly whenever the patient chewed food. He was put upon one ounce of lime-juice three times a day, and was also to take three doses of citric acid, five grains to a dose. On the first of February his condition was found as follows: Gums sore and spongy; no recurrence of the hemorrhage; pain in the long bones; disinclination to exercise; great despondency and emaciation; slight diarrhœa; shortness of breath; but no scurvy spots to be seen in any part of the body.

Shortly afterward some three other men complained of sore and bleeding gums, and they were put upon the same treatment. Their improvement was slow, probably from unfavorable surroundings, and especially mental influences, but it was more rapid toward spring, when the less severe weather enabled the patients to exercise more in the open air and enjoy the light of the sun.

On the 20th of March I was relieved by Dr. Jones, and went up to the post, established by Captain Berry on the Northern coast, so that I lost sight of Mr. De T. until I saw him again on the 10th of May, when I found him almost well. The gums, however, remained slightly spongy, and the body was somewhat wasted; he had, however, regained his good spirits, as he was already on board a whaler, with civilized clothes on, and eating hard bread and molasses.

The next case was that of H. S. W., master; this patient presented some acute symptoms, and the disease was directly traceable to

overwork, exposure, and fatigue, as the exciting cause. After the disappearance of Master C. F. Putnam, who was blown off shore on an ice floe on the 11th of January, Mr. W. undertook a series of sledge-journeys in search of him, thoroughly examining the coast for a distance of 200 miles. He was away upwards of a month, and at his return looked completely broken down, having been travelling most of the time since he left us, and obliged to sleep out on several occasions on account of gales of wind and snow-drifts. These hardships, operating on a constitution already weakened by confinement and privation, contributed to the appearance of the disease. On the 24th of February four or five days after his return, Mr. W. first complained of spitting blood, and thought he was going to have an abscess around one of the upper molar teeth. Upon examination his gums were found very spongy; they bled when but slightly touched by the finger, and were becoming detached from around the neck of the teeth; a brownish line was also to be seen at the edge of the gums, which was, no doubt, formed by necrotic tissue, imparting great fetor to the breath. The patient also complained of lassitude; had lost a great deal of flesh, and become very sallow. He was immediately put upon 3 ounces of lime-juice, and 15 grains of citric acid a day.

Feb. 28—Mr. W. not improving, the gums continue very sore and bleeding; feels weaker, and has great aversion to exercise.

March 2—Patient complains of sore throat; on examination tonsils were found perfectly normal, but on the left anterior column of the fauces is to be seen a red patch, ecchymotic in nature; the tissues around are tumefied, causing painful deglutition. The patient feels very despondent; he is very peevish and will not leave his hut. All attempts to cheer him up are vain, and thinks he is going to die. Over his legs, around the ankle and calf especially, are to be seen purple, ulcerated spots.

March 6—The tumefaction of the tissues of the fauces had diminished; deglutition easier; no change in the condition of the gums; losing flesh rapidly; spirits very low.

March 8—Worse. The right anterior column of the fauces presents an ecchymotic patch; skin of face and popliteal spaces very sallow; breath very fetid; marked dyspnœa on exercising; no congestion of the lungs noticeable.

March 9—Throat less sore; other symptoms about the same.

March 10—Throat much better; sense of lassitude diminishing; patient more cheerful.

March 11—Throat almost well; general improvements. From this date Mr. W. steadily improved; the only symptom which remained unabated was the sponginess of the gums, which were still in a pretty bad condition when the patient reached San Francisco, after enjoying a month of good, varied, fresh diet.

March 16—Throat well; no soreness left, but ecchymotic patches still present; patient feels better in every respect; takes pleasure in exercising, and is able to keep longer out of doors, as the weather is already quite mild.

On the 20th of March I lost sight of the patient, and on the 10th of May, when I saw him again, I found him greatly changed for the better; he was then very cheerful and felt strong enough to make a sledge journey of 30 miles three days in succession.

Here we have two cases of scurvy, both presenting about the same symptoms, both treated with lime-juice; in one we witness a speedy recovery, or at least amelioration; the other remains stationary, and seems only to be benefitted by the influence of spring and the return of the sun. Perhaps an explanation of the apparent failure of lime-juice in Mr. De T.'s case may be found in the fact already mentioned, that his surroundings were not calculated to keep him in a cheerful mind, being always in a state of mental anxiety, fearing violence at the hands of the natives, and always thinking of his wife and children, who, should he die, as he often said, would be left without a support in this world.

FOLLY OF PREMATURELY EXTRACTING TEMPORARY TEETH.

DR. WM. N. MORRISON, ST. LOUIS, MO.

The preservation of deciduous teeth to the last moment of their usefulness would prevent most cases of irregularity, which is so often directly traceable to the ruthless sacrifice of these most important organs, at an age when the individual requires Nature's best nourishment, masticated in the best manner. Who is it that can look upon the germs in the jaws of a skeleton head of a child, five or six years old, and not bow in humble submission to the power that, without human aid, can bring them out of such chaos to the beautiful position and symmetry of adult life?

The removal of the first teeth removes the means of proper mastication of the food, necessary to develop the permanent teeth and jaws. Upon the appearance of the incisors inside of the deciduous teeth, most parents, and many dentists, decide upon extracting the deciduous to make room, and if the alveolus has not developed, and there is a tendency to a rotation in the advancing crown, often the lateral incisors are also sacrificed, and the permanent centrals allowed to occupy their space and further growth of the jaw thereby arrested. Then, when the permanent laterals appear, the deciduous canines with unabsorbed roots are sacrificed in the same manner, which permits the permanent laterals to rest against the first bicuspids. Now, when the permanent canine is erupted, it rides down over both without a space,

outside of the circle, and is pronounced a *tush*—the bug-bear which causes the war cry for the extraction of bicuspids or molars, and also causes the change in the line of occlusion—tipping some crowns forward and others backward, allowing some crowns to be too long, and others too short—a condition of irregularity most difficult to correct, the result of the loss of the keystone of an arch. When the dental arch is not well keyed it topples to ruin, the same as any other arch. Now, I regard this sort of extraction the cause of much irregularity of the permanent teeth. When I have such a case for treatment, I give instructions to wait, and to work the baby teeth loose with the thumb and finger, which has a tendency to expand the process and assist Nature in resorption of the roots. With this watchful care, keeping all the deciduous teeth in the arch and guarding their pulps, and wedging, when necessary, to make room for those advancing, they will drop rootless at the proper time. I believe the resorbed ossific tissue performs a very important part in elaborating the second dentition, from the fact that those patients who have had that physiological action carried to the greatest extent have dentures of the most superior material, densest texture, and regular arrangement.

I rarely extract deciduous teeth, or roots, but leave them as so many wedges or keys, between the permanent teeth; and where the pulps are dead, and I know absorption cannot take place, I snap the crowns off with excising forceps, so that the roots can go upon either side of the advancing crown, grind them smooth with corundum wheels, and leave these old roots as long as they will stay—or at least, until the teeth are well secured in their permanent positions in the arch.—*Ill. Trans.*

Saving a Split tooth.—Last spring a gentleman called at the office, stating that there was pain in an inferior molar tooth. I made an examination and found it quite sound. Upon pressing it I noticed the tooth had been split through the center, and of course it moved a little and opened when he bit, and gave him pain. The pulp was alive, and the tooth in all respects healthy except that fissure or crack. It was a very valuable tooth and I finally decided I would cap it. I cut away the grinding surface a little and took an impression of it. I had a gold crown made like a thimble to fit the tooth and that would extend to the margin of the gum and fit the neck. It was fitted, I might say, perfectly. After having properly arranged it I filled the crown with a thin coating of oxy-phosphate of zinc, forcing it down. This was nearly a year ago. The tooth has given no trouble since.

DR. C. E. FRANCIS.

A MOTHER TO MOTHERS.

WHY THE BABY TEETH SHOULD BE PRESERVED.

[From Southern Dental Journal.]

We will now consider why it is a matter of first importance that the baby teeth—which are all eventually to be replaced by larger, stronger, better ones—should nevertheless be preserved in all their integrity until, having done their duty, nature removes them one by one, (as their successors are ready to come forward), by a most beautiful process—one of the most wonderful in the human economy—namely, the absorption (or gradual wasting away) of the roots. The crowns then detach themselves from the gum, and fall from the mouth, having fulfilled their mission without ever having caused a moment's pain or suffering to the happy child. But this can only be the case where the teeth are naturally of good material and have been properly cared for.

How different is the case with the teeth of those unfortunate children whose mothers, through ignorance or neglect, allow the little pearls to lie embedded in the foul remains of decaying food, corroded by the gases from a stomach overloaded with unsuitable, indigestible, unmasticated food, until they are absolutely eaten away, entailing the most cruel tortures of *tooth-ache*, day after day and night after night, until, amid shrieks of agony, the teeth are extracted.

When the baby-teeth loosen and fall out, in nature's own time, they have no roots left, but when they are extracted prematurely, the roots are long and firmly attached, and in the case of the first molars, (so often mistaken for baby-teeth and allowed to decay as such), even larger and more divergent than in the other permanent teeth.

The tooth, being frail from decay, offers no firm hold to the instruments of the dentist, and as it is usually supposed that *anybody can pull a baby-tooth* the young tender jaw-bone itself is often injured in these attempts at premature extraction.

The loss to the child of the organs of mastication is also a serious one.

The stomach being overtaxed by unmasticated, indigestible food, the general health must suffer. Assimilation being imperfect, nutrition is impaired, and the growth and development of all the organs checked.

Dr. Thomas Gaddes, editor of the English *Dental Record*, says: "To the child whose diet consists in part of solid food, the temporary teeth are as valuable in preparing that food for digestion as are the permanent ones to the adult. Indeed, it is more important that the child should have the agents necessary for performing well the first part of the digestive process, for if a child—say four years old—

be deprived of a few of its organs of mastication, and if it be allowed solid food that it cannot masticate, it is not unreasonable that, by the greater excitability of its nervous system in early life, its delicate digestive apparatus should be deranged, and diarrhœa, convulsions, or other reflex disturbances be set up, as well as the nutrition of the child interfered with."

Dr. Gaddes also refers the great loss of infantile life, as recorded in the tables of mortality, to the use of improper food, imperfectly prepared for digestion, by defective teeth, or through the want of these organs. He says:

"By so much precisely as the power of mastication is reduced, and its proper performances hindered, by so much will the process of nutrition, and healthy, vigorous, perfect structural formation be impaired, as the ultimate result.

If the decay is allowed to go on, until suppuration takes place, and an abscess (or *gum-boil*) is formed, the growing germs of the permanent teeth are liable to be injured, (or the growth of the roots entirely checked if they are already well advanced toward eruption), by the inflammation of the surrounding tissues.

Decay being allowed to reach this point, the "nerve" being destroyed, the *tooth is dead*, and usually no further absorption of the root takes place. It then becomes an obstacle in the way of the new tooth, which is forced to make its way out at some other point, inside or outside of the arch, thus producing irregularity of the permanent teeth.

Another consideration with regard to the decay of the deciduous teeth is the effect of their premature extraction upon the jaw itself, and the spaces to be occupied by the permanent teeth.

After a tooth is extracted, nature has no further use for the empty socket, *as such*, but, as it contains valuable mineral elements, *building materials*, it is soon taken down, as it was built up, cell by cell, and the materials probably taken into the circulation, to be used again in building up other organs requiring the same elements—perhaps even contributing to the growth of the permanent teeth now rapidly advancing.

The teeth, being held in their upright position partly by the lateral pressure exerted by one against the other, the bony walls of the socket of the lost tooth having disappeared, the pressure from the remaining teeth upon those adjoining the vacant place, meeting with no opposition gradually crowd them over into this space, which is sometimes thus entirely obliterated.

When this occurs in several different places in the mouth, the consequent contraction of the arch, and loss of space, cannot fail to be disastrous to the regularity of the permanent teeth.

If more teeth are removed from one side than from the other, which is verv apt to be the case, the unresisted strain of the powerful muscles on that side of the face will draw even the lips and the nose to one side, producing absolute distortion of the face, and marring its beauty forever.

Even if extraction be equal on both sides, the consequent shrinkage will give an aged look to the young face that is painful and unpleasant.

Thus arguments almost *ad infinitum* can be urged for the care and preservation of the deciduous teeth.

Let the minutest cavity of decay be, therefore, filled promptly, no matter how young your child may be when the little black speck shows itself.

HOW DR. PERRY CARES FOR CHILDREN'S TEETH.

I take great delight in the care of children's teeth. I commence very early and urge upon parents the need of great care and constant watchfulness. I do not think I ever filled a temporary tooth with gold in my life. I use tinfoil, oxyphosphate, gutta-percha, and sometimes amalgam. To the permanent teeth, from the time of their eruption, I give the closest attention. I never allow a fissure that shows the slightest sign of softening to go unfilled. Many of those in the grinding surfaces I cut out and fill before the teeth have fairly erupted, because I recognize that the most dangerous period is the first few months after the teeth have broken through the gum. At this time they are often covered by portions of the gum, which cause a sheltered condition conducive to rapid decay in the imperfectly calcified fissures. With soft teeth aud a destructive condition of the fluids of the mouth, I often lift the flaps of the gum and fill the fissures under them with such materials as I can best use. I rarely use gold, preferring tin or oxyphosphate for such operations.

Every fissure into which I can pass my finest examining point I cut out with delicate instruments or the very finest burs. Under certain conditions I follow the fissures to their extremities, even if they have not already softened; for if this is not done I know that in a few years a second operation will be needed.

Before ten years of age I fill many cavities in the grinding surfaces of permanent teeth with the oxyphosphate of zinc, covering it with sandarac varnish. In the grinding surface fissures it sometimes lasts astonishingly. If the teeth are not sufficiently erupted to articulate with the opposing teeth, these fissures can be filled very full, thus allowing for wear. Cavities filled with tin or oxyphosphate at twelve years of age can be kept small, and the borders being allowed to

calcify, smaller fillings can be made at twenty years of age than if the same cavities had been filled with gold at twelve. At this age the teeth are so soft that they must be cut away considerably to get sufficiently firm borders to receive gold, whereas we all know that the softened part of a cavity need not be all cut out in order to save the tooth with oxyphosphate or with tin, and we also know that in time the softened borders of the cavity become calcified—sometimes, in fact, even recalcified when decay had actually commenced. Therefore I watch the fissures very closely in young teeth, and endeavor to keep the fillings in them as small as possible. Before ten years of age I use tin or oxyphosphate quite largely. I can do this with safety, because most of my little patients are sent frequently for regular attention.

Whenever I find teeth of good quality and a manageable child, so that I can easily make a permanent operation, I use gold without regard to age. In the front teeth I use oxyphosphate and gutta-percha a great deal before even fifteen years of age. Before that age I sometimes use tin in the front teeth, though I prefer to put it in cavities exposed to attrition, for I have observed that in sheltered places it does not keep bright, but becomes oxidized and softened.—*Southern Dental Journal.*

PREPARATION OF NITROUS OXIDE GAS.

Pure nitrous oxide gas may be obtained by carefully heating nitrate of ammonium in a glass retort until it melts (at about 165 deg. C., or 329 deg. F.), and then slowly raising the heat to 185 deg. C. (365 deg. F.), when the salt is decomposed into nitrous oxide gas (N_2O) and water (H_2O). Pass the gas into a gallon bottle provided with an outlet tube connected with the gasometer; this bottle should be one-third full of a strong solution of ferous sulphate (copperas), to which has been added an ounce of strong sulphuric acid. The tube connected with the retort should dip about an inch under the surface of this liquid. Make close joints with good corks and rubber tubing. The gas thus washed can be passed into the gasometer, and, after standing a few hours, is ready for use.—*Scientific American.*

In Disease of the Gums.—Dr. Cutler says: My principal remedy is the tincture of the root of aconite, administered with a drop tube, and immediately washed out. Instantaneous relief usually ensues. I sometimes use sulphate of iron, applied on cotton and placed high up under the gum. The action of this remedy is that the sulphuric acid leaves the iron, and by combination with the salts, produces beneficial effects.

INFLAMMATION OF ENAMEL.—SECONDARY DENTINE.

DR. W. H. ATKINSON, NEW YORK.

It might be denied that inflammation were possible in enamel. I would have denied that myself in former years. But do you know what inflammation is? There has been no adequate definition of inflammation to this day unless we take the one of John Hunter, who gave it inspirationally. He said: "Inflammation is none other than the returning of the tissues to their embryonal condition." We might go to the definition of the term and find it meant oxidation —properly, burning. The next thing is *death*. When a dentist has excavated a portion of decay and come to perfectly healthy tissue on the margins of the cavity, it is not important to remove all softened dentine and expose the pulp, as you would if you cut all away. I have taken out amalgam fillings that were put over the decay when it was as soft as mush, that afterwards became flinty hard. The point of instruction I wish to convey as the richest gift of my own appreciation of these efforts is to fully emphasize the contradiction of everything that is in the old books and is outside of our latest inventions, and that is, that which is called decalcification is simply a solution of the lime-salts *in situ*. They remained there and are organized on a lower plane. It may recalcify without taking the form of secondary dentine, or it may be that it goes on to the state of retrograde metamorphosis that enables it to obey the typal demand that it shall be like original dentine; so we have two kings of secondary dentine, and that accounts for this harqening of the soft place. In the first place, let us reason: Where would they get the lime-salts in sufficent quantities, particularly without channels through which to carry it? I think the process of ratiocination will convince every man who can think at all that the statement is true. The lime-salts are in the leathery mass that we call decalcified dentine, and when that is shut off from the increment of impact of energy that induces the retrograde metamorphosis that is called inflammation—when that is cut off, the typal demand is able to execute its behest and reform this tissue so as to be a protection to the source of supply of nutriment to the balance of the dentine on demand. I can show you plenty of sections of teeth, even before the enamel has been disintegrated at all, that have been regarded as perfectly normal in physiological condition, with enlarged infiltration of lime-salts in the part that was once pulp; and in a direct line with the scource, following the linē of the living matter, these dentine tubules and between these little living tracts between the so-called prisms of enamel, showing the line of this energy, whatever it was, that disturbed this action and awakened all the nutrient changes at this part; that it sent for the police and they went to work

and barricaded against the increase of the evil presentment. If you have comprehended what I have given you, you now have the alphabet of the whole matter.—*N. Y. Trans.*

NEW COMPOSITION FOR CASTS.

Mr. Charles W. Cathcart in the *Edinburgh Clinical and Pathological Journal,* has an article on the use of a composition as follows:

Strong, clear glue or gelatine	4 ozs.
Glycerine	4 ozs.
Water	1oz.

He breaks the glue into small pieces, soaks for an hour in cold water, melts, and adds to the warm glycerine. When thoroughly mixed, this substance can be poured into any mould, and when cool it is quite tough and elastic. Its clear, brownish color is an objection which is overcome by oxide of zinc, 1 lb.; glycerine, ½ lb.; glue, 1 oz.; mix the glycerine and oxide of zinc, and add the glue melted. For a flesh tint, add solution of burnt sienna rubbed up in glycerine, or of vermillion in glycerine.

This material cuts with something like the consistence of skin, is elastic, and is tough enough to hold stitches. It my be used to illustrate certain plastic operations, such as hare-lip. In making casts it is not necessary to prepare the plaster mould, other than to see that it is perfectly dry. When cold, it my be *pulled* out without fear. The cost per pound is from 1s., 6d., to 2s, and the specimens keep well.

PEROXIDE OF HYDROGEN.

For the cure of alveolar abscesses, there is, perhaps, no more efficient remedy than peroxide of hydrogen. As iodoform, it ranks high as a non-irritant antiseptic and germicide. In conversation with some of those who are specially successful in curing abscesses and ulcers we find peroxide of hydrogen their dependence.

Decayed teeth, it is said, are frequently the cause of diseases of the eyes and ears, and a serious case of this kind, in which a partial loss of sight from cataract was traced to a diseased condition of the teeth, has recently been reported to the Haveian Society of London.

In an Albany dentist's office a few days ago, a lady died in the operating chair from the administration of chloroform. While her body was being carried out, a lady living at Acree entered, and said: "Give me chloroform, and pull away. Only one in a thousand dies, and the rest of this thousand is safe now."—*Exchange.*

THICK RUBBER DAM.

For years I have been using medium rubber dam; tried some thin, but abandoned it as it was easily torn and was very troublesome on account of folding and easily getting in the way. Recently I have been using thick dam and find it possesses many advantages. You can punch a small hole in it and stretch the dam over a tooth without tearing it, and it hugs the tooth so closely that it is seldom necessary to use a clamp unless the tooth is far back in the mouth. It does not fold up and get in the way, does not cling to the face and produce an unpleasant feeling as is the case with thin and medium thickness. When preparing a cavity, having the dam in place, you are not apt to tear the thick rubber, nor will it catch and wrap around a bur, or onto a disk. I have been able to excravate, fill and finish a large approximal filling in a lower molar, without injury to the rubber. Try it.—*Archives of Dentistry.*

American Dentists and Authors.—An American Editor of a Dental Journal laments the imperfect way in which some societies are supported, and says he is sure that by far the larger portion of American Dentists are equally deft with their pen as their forceps. We agree, but is the same assurance true on this side of the Atlantic. As all who have traveled in America know, everyone there drives a quill, and drives it well. This probably arises from the fact that Americans practice writing far more than Englishmen do. English dentists would do much to raise their profession in the esteem of all both here and abroad, if they would shake off their cloak of taciturnity.—*British Jour. Den. Sc.*

The treatment of blind abscess.—I wish to say something about peroxide of hydrogen. At the very beginning of treatment the rubber dam should be applied, and during its whole course saliva should not be permitted to enter the root canals, if a rapid cure is desired. When H_2O_2 is brought in contact with pus, the oxygen will unite with the hydrogen of pus and will liquefy it. The excess of oxygen will enter and distend the sac, there producing its disinfectant and garmicide effect. The action will be indicated by frothing and bubbling, often above the top of the tooth. Continue gently pumping until there is no more froth, fill loosely with cotton and volatile extracts of eucalyptus; repeat the application at intervals of three days till the discharge ceases. Another use for the agent is in cases of infectious alveolitis; injected into the pockets, they will be disinfected and emptied. Any other desired treatment may then be used.—A. W. HARLAN, *Chicago.*

SUBSTITUTE FOR GUTTA PERCHA.

It is stated that a very cheap substitute for this useful article has been patented by a German chemist: Powdered gum copal and sulphur are mixed with about double their bulk of oil of turpentine or petroleum, and are well heated and thoroughly stirred. After being allowed to cool to a certain temperature, the mass has added to it casein dissolved in weak ammonia. Once more it is heated to its former temperature, and is then boiled in a solution of nutgalls or catechu. After some hours' boiling the product is cooled, washed in cold water, kneaded in hot water, rolled out, and finally dried.

Odontoblasts (tooth-formers) are a row of beautifully organized bodies located on the outside of the pulp, next to the dentine. They have a reticular structure, in the meshes of which water is held, until it is displaced by lime-salts. While one row of odontoblasts is being converted into dentine by the deposition of lime-salts, another row is being organized and will take their place in regular order. Thus it is that the pulp is constantly becoming smaller and the dentine thicker. You will observe that the odontoblasts have a perceptible nucleus. It is at that point that the lime-salts are first deposited, and it undoubtedly remains the nucleus after the odontoblast becomes a dentine cell. And I have no doubt but that the delicate reticulum of the odontoblast still exists in the dentine cell, but so very delicate that the highest powers of the microscope fail to bring them to view. I want you to remember that the first row of odontoblasts formed is immediately under the enamel, and as each row becomes dentine, another row is formed back, or inside of it, so that the growth of dentine is from without inward, while the growth of the enamel is from within outward. The crown of the tooth with its enamel is all formed before any work is done upon the root. The point where the finishing touches are put on is the extreme end of the root, as far as outward appearances are concerned.

Nature is always at work, so that work is constantly going on in a healthy tooth in a quiet and imperceptible way. But under the slightest irritation, either from friction, caries or any other source, the odontoblasts become stimulated and the process of dentine forming is renewed with vigor. This is the proper fulfillment of the old adage that "self-protection is the first law of nature." It is under such conditions that we have what is known as secondary dentine deposited. According to Bödecker the living matter that runs into the canaliculi, or canals, is made up from the sheaths or outer portions of the odontoblasts, and apparently passes between them, instead of out of their ends, as described by Tomes.—DR. FRANK ABBOTT.

HOW TO MAKE A PERFECT FITTING PLATE.

WILL. H. STEPHENSON.

(Trans. Indiana Dental Society.)

It has been and is now, the custom to make air chambers in upper plates; the object of which is their better retention. It is evident that the plate is held in position by the pressure of the atmosphere upon one side, the air being pressed out from the other side by the exact coaptation of the surface of the plate with the surface of the mouth. The natural tendency of such an air chamber must be to reduce the pressure. If the pressure is too great then an air chamber may be of benefit in reducing the pressure. I have, however, never heard any one claim that the pressure would be too great. My observations has been that in soft mouths, the cavity becomes entirely filled by the soft tissues. This is caused by the greater pressure upon the surrounding tissues, thus forcing them into the cavity, producing congestion and inflammation. It thereby becomes an instrument of torture, rather than an aid to the better retention of the plate. Believing them to be of no advantage whatever, I have discarded air chambers entirely, both in hard and soft mouths, and have found my work gives better satisfaction than when I followed the beaten path. Try the following experiment.

Take two pieces of smooth glass of equal size, moisten them and press them together, and notice the tenacity with which they adhere to each other. Then grind a cavily in one of them, proportioned to the size of the glass as the air chamber is to the dental plate; press them together in the same manner, and see if they adhere with greater tenacity than before. If they do not, then the reason usually given for the use of air chambers is not good. During the past seven years I have tried all the various methods of fitting plates that have come to my notice, and as a result have adopted the following method. This at least, has given good results in all cases where patients had teeth which articulated over the whole grinding surface of the molars.

We all know that plaster, if used with water alone will warp and a misfit is the result. I have tried various means to avoid this. I now use one and a half teaspoonful of potash alum to the pint of water and use the solution in mixing plaster. I use this solution in all my processes with plaster and find it answers a good purpose. In taking impressions I use plaster as thick as I can work it, and in taking the second impression for the model, I mix it just thin enough to run into and fill perfectly the impression, made in the first cast, I believe the secret of working plaster so as to avoid warping, lies in stirring the misture as little as possible, and in using it as stiff as it will allow of a clear and perfect impression. After taking the first impression,

take a wax knife or a large spoon excavator, and scrape the impression from one side to the other about the thickness of heavy writing paper, then scrape over the palatine surface. By feeling in the mouth you will ascertain the distance to be scraped, all the hard surface must be scraped. If very soft, scrape the thickness of blotting paper; if hard, the thickness of thin writing paper will be sufficient. Now place the impression in water, and saturate it, using neither varnish nor oil, mix a little spanish brown with your plaster, to change the color, so you can tell when you cut down to the model. As soon as you have your model ready, turn it over and scrape it on both sides of the palate process over the posterior palatin eforamen and grove anteriorly about one half inch, and to the edge of the alveolar process, so that it will bear hard upon the soft tissues. Some mouths require as much as a one tenth of an inch. By means of thus scraping your plate it will rest hard upon the soft tissues, and after a few days wearing will bear upon the hard and soft equally, thus preventing the rocking and falling down of the plate. I sometimes scrape the model under the lips and next to the cheeks so that it may press firmly at these points.

In the lower plate after taking the impression, I scrape the bottom of the impression where the teeth have been extracted, about the thickness of No. 60 foil and after I get my model I scrape the labial, bucial and lingual surfaces about the thickness of thin writing paper. When about to take the bite, I say nothing to the patient of my intentions, but place my wax plates in the mouth and order the mouth closed, and at the same time direct them to perform the act of empty deglutition. At that instant I press the wax together. After the bite is made, and wax removed from the mouth, I have the patient push the chin forward and bite, then draw the chin back and bite again; by doing this, I am enabled to tell, when I get the model in the articulator, whether the bite is correct or not.

By following this plan, I have only had two wrong bites in the past five years. In articulating the teeth, I set them as far under the ridge as possible. If gum teeth will not go under, I substitute plain teeth, and will rather sacrifice the beauty of the joint at the bicuspids and molars, than not to have them go under the ridge. The leverage must be overcome, and I know of no better way than to set the teeth under and as near where the natural teeth were as possible. I consider it far better to use plain teeth at bicuspids and molars than to let the teeth project from the ridge. I use plain teeth with pink rubber for gums, when the patient will consent, and thereby make the teeth more serviceable in masticating food. Gum teeth are well enough in their place, but I would dispense with them entirely if permitted. They remind one of soldiers on dress parade, and cause too great a similarity of expression.

In grinding the teeth on the model, for old people, I grind off the cusps of the bicuspids and molars slightly, and also square the front teeth to make them look as if worn by age. I make them articulate so that the back teeth will strike first and leave a space the thickness of blotting paper between the front teeth. After they are worn a few days you will find them close together, and the front block will not be crowded off the plate, I am confident that if you will try this plan, you will be pleased with the results and your patients will meet you with a smile instead of that care worn and discouraged look so often seen.

Antagonizing artificial teeth.—At the meeting of the Association last year, Dr. Driscoll read a paper describing his method of antagonizing full sets of teeth. You will remember that he claimed that by making the lower molars short and the upper long, in the occlusion of the jaws the lower plate would be pressed forward and the upper backward, and thus both would be more firmly held in place. During the past year I have tried this method in a number of cases and have been well pleased with the results. When the teeth are arranged in this manner the lower plate is not so liable to be dragged backward in mastication. Many lower plates are rendered almost useless by the edges being allowed to extend so low that they rest almost entirely upon the soft tissues. Such a plate is thrown out of position by every movement of the tongue and by the muscles brought into action in opening and closing the mouth during mastication, and when speaking. When a full set of teeth is first placed in the mouth and the mouth is closed, the cutting edges of the lower incisors should not touch the upper, and should barely come upon a level with them. I can hardly conceive a case like this in which it would be good practice to allow the superior incisors to overlap the inferior, to any considerable extent. If the teeth are allowed to overlap in this manner the plates will be more easily tilted when biting upon the front teeth, and food cannot be so readily taken into the mouth.—*Dr. T. H. Martin, Lebanon, Ind.*

Very fine copper wire instead of floss silk was recommended in the ITEMS a few months since. Some are trying it with good success. After putting on the dam place it around the tooth in position, and twist the ends with a delicately flat-nosed pliers. Nip the ends about ¼ inch long and bend over the gum to keep the rubber back.

To harden a plaster model, allow it to dry and then immerse it in a hot solution of thin glue—common carpenter's glue.

TO MAKE GOOD FITTING PLATES.

We all know that plaster, if used with water alone, will warp more or less, and a misfit of greater or less degree is the result. I have tried various means to avoid warping. I now use one and a half teaspoonsful of potash alum to the pint of water and use the solution in mixing plaster. I use this solution in all my processes with plaster and find it answers a good purpose. In taking impressions I use plaster as thick as I can work it, and in taking the second impression for the model I mix it just thin enough to run into and fill perfectly the impressions made in the first cast. I believe the secret of working plaster so as to avoid warping lies in stirring the mixture as little as possible, and using it as stiff as will allow of a clear and perfect impression. After taking the first impression, take a wax-knife or large spoon excavator. and scrape the impression from the maxillary tuberosity on the left, around the alveolar process to the maxillary tuberosity on the right, about the thickness of heavy writing paper. Then scrape over the incisive foramen, along the palate process of superior maxilla and of the palate, to the posterior nasal spine. By feeling in the mouth with the finger you will ascertain the distance to the hard surfaces connected with these parts. All the hard surface must be scraped. The amount of scraping to be done will be determined by the character of the soft tissues. If very soft, scrape the thickness of blotting paper; if hard, the thickness of thin writing paper will be sufficient. Now, place the impression in water and saturate it, using neither varnish nor oil. Mix a little Spanish brown with your plaster, to change the color, so that you can tell when you cut down to the model. By the difference in color you will find the separation as good as when varnish and oil have been used. As soon as you have your model ready, turn it over and scrape it on both sides of the palate process over the posterior palatine foramen, and groove anteriorly one-half inch and to the edge of the alveolar process. It needs to be scraped so that it will bear hard upon the soft tissues. Some mouths require as much as one-tenth of an inch. By means of this scraping, your plate will rest hard upon soft tissues, and after a few days' wearing will bear upon the hard tissues equally, thus preventing the rocking and falling down of the plate. I sometimes scrape the model under the lips and next to the cheeks so that it may press firmly at these points.

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New use for glycerine.—Physicians and dentists who use small mirrors to explore the throat and teeth, astronomers employing large mirrors out of doors, all who have occasion to use spy-glasses in foggy weather, and especially those near-sighted persons who cannot shave themselves without bringing their noses almost in contact with the looking-glass, are doubtless aware that the lustre of mirrors becomes soon dimmed by the breath, by dew, and generally by water in a vaporous state. The way to prevent this troublesome fog is simply to wipe the surface of the mirror, before using, with a rag moistened with glycerine. By this substance the watery vapor is completely taken up.—*Scientific American.*

PYORRHŒA ALVEOLARIS.

DR. WM. H. ATKINSON, NEW YORK.

You ask a paper, dear "T. B.",
For number eight of ITEMS:
A "short" one too, in which shall be
Displayed the finite ad-fin-items
Of how the function is disturbed
In "Pyorrhœa Alveolaris,"—
And how the evil to be curbed,
Is made as plain as French in Paris.

Disuse, misuse of teeth and jaws,
Arrests the currents of nutrition,
And thus, the failure of the laws
Of health to find fruition,
Lays the base of all that follows
In this portal of digestion,
That receives, prepares and swallows
All the primates of this question.

To tear, to break and mix together
All that comes into this hopper,
And tell the when, the how and whether
It is fit to swallow proper,
Is a task, indeed, herculean—
If much of detail be not granted,
As the angel Truth cerulean
In the human mind is planted.

To mix the food, and finely churn it
Into chyme, and chyle, and pabulum,
That breath may then so finely burn it
Into this protoplasmic sum,
Which, taken by the typal law,
Converted into tissue is,
That function may, without a flaw,
In every organ takes its rise.

But when deficient air or food
Disturbs the work of nutrient power,
The Radiance-storing is not good;
Disease and death begin to lower;
By reason of the *under*-working
Of brain or bowel, heart or stomach,
Where foul disease, like demon lurking,
Prevents the healthy action's come—back

In *over*-work is also danger;
But not so fraught with dire disaster
As is inaction—the deranger,
Calling for some potent master.
This Potent master is in Pyorrhœa
A cleaning out of all the by-ways
With axe or hoe—hydro-peroxygea,
Elixir V. and chemic by-plays.

First remove all foreign matter—
Then, mechano-chemic ways pursue—
Yourself you then may safely flatter
To have the tissues good as new.

THE CARE OF THE TEETH.

In a paper recently read before the Hygenic Society of Berlin, Herr Mill reported the results of his endeavors to determine the nature of the ferment occurring in the mouth, to which he is disposed to attribute the setting up of caries in the teeth. He stated that he had found the ferment to exist in the saliva, and that it appeared to result from the growth of two forms of lactic acid fungi, which may prove to be reducible to a single species. In comparative tests as to the agents best suited to stop the development of the organism, and the consequent formation in the mouth of acid, to the action of which on the enamel of the teeth he considers the caries to be due, he found that a solution of corrosive sublimate, 1 in 500,000, checked the formation of acid, and a solution of 1 in 100,000 completely destroyed the organisms. He therefore thinks that a solution of corrosive sublimate, not strong enough to be dangerous, would be found a very effective mouth wash. The spores of the organisms were found to remain capable of development after an hour's boiling in a solution of meat extract. The organisms were also destroyed by a solution of potassium permanganate, 1 in 1,000, solution of carbolic acid, 1 in 500, and salicylic acid, 1 in 125, while the development of acid was checked by solutions of half these strengths.—*St. Louis Druggist.*

Lord Bacon's signs of short life are quick growth, fair, soft skin, soft, fine hair, early corpulence, large head, short neck, small mouth, fat ear, brittle, separated teeth. Some of his signs of long life are slow growth, hard, coarse hair, rough, freckled skin, deep furrows in the forehead, firm flesh, with veins lying high, wide nostrils, large mouth, hard, gristly ear, strong, contiguous teeth. He adds that early gray hair is not significant, some of the longest livers having turned gray in early life.—*Scientific Californian.*

Editorial.

LIFE INSURANCE.

Our article on life insurance in June ITEMS receives favor from the following pathetic appeal found in the *Southern Dental Journal:*

SYLVANIA, GA., Feb. 20th., 1884.

Editor, *Southern Dental Journal:*

You will please give these few lines space in your columns.

I, the wife of Dr. L. B. Brown, deceased, make an appeal to the Dental profession for aid. I am left in a helpless condition with nine small children, most of them girls, and I an invalid. I am in destitute circumstances and need help. He made his living wholly by his profession; but his long and continued illness brought his family to abject poverty. I make this appeal to the profession believing that I will receive help. I will refer them to two of the most prominent gentlemen of this place; also his attending physician: Col. J. C. Dell, Judge Hobby, and Dr. J. D. Mims; who will take great pleasure in stating to any my true condition. Hoping that all will respond to my call for assistance,

I am yours, very respectfully,

MRS. F. M. BROWN.

P. S.—Dr. L. B. Brown departed this life Feb. 7, 1884.

We appeal to sympathizing dentists to send Mrs. Brown substantial aid. Do as you would like other dentists to do for your widow, should you fall in an unexpected moment, and leave your loved ones without support.

But how sad it is that a man should suffer the risk of leaving his family destitute, when it would have cost him so little to have left to them two, three, or five thousand dollars at his death. And yet Dr. Brown is not a solitary exception. Other good men all over the country are doing just as badly. We all live too much for the present. Perhaps it would have been quite difficult for Dr. Brown, with his large family of nine children, to have put aside fifty or a hundred dollars a year for life insurance, and yet it would have been wise for him to have done so, even if he and his had been obliged to take that much from what they ate and wore. When it was too late, Dr. Brown undoubtedly saw this, and it must have made the article of death more bitter for having seen it. Reader, while we ask you to remember Mrs. Brown, look also to your own situation, and see that it is fortified against the possibility of such a calamity by being insured. *Do it now.*

WHAT IS THE BEST STANDARD FOR PRICES?

1st—Some dentists are in favor of so much an hour. But there are only a few who can maintain this with dignity and success. To have it generally understood that your price is, for instance, four doldars an hour, will look extravagant to many good patrons. And yet an intelligent dentist should not average less while at work. His business is not like that of the mechanic, with every hour in the day and every day in the week bringing in a specified sum. If it is, it shows he has come up to such an exceptional practice through a long series of preparations and struggles that merits the recognition it receives. A dentist of this city, for some years, has charged ten dollars an hour, and is almost constantly engaged. He has a class of patients who will not be offended at anything but a refusal to be served. But in the practice of most dentists, fixed prices per hour often causes unnecessary—and sometimes unseemly—irritation. Patients become impatient at delays and interruptions that are really necessary, and chafe at the consumption of time in—what seems to them—trivial and unnecessarily prolonged labor. It seems to make the money consideration too prominent, and thus repels estimable patrons. In many cases it is unjust, because some operations are of far less value, in proportion to the time consumed, than others.

2d—The degree of skill required is a better standard. But this is so variable, and has to be estimated and regulated from so many standpoints, that it works unsatisfactory.

3d—The kind and amount of material used is made prominent by some. This is quite a consideration at times, but can hardly bear much proportion to the value of the services.

4th—The wealth and standing of the patients should be a consideration. Some can afford to pay more than others, and ought to pay more, because others cannot pay enough. And yet, a dentist has to be very cautious in this respect. It is like the merchant charging his good customers the losses he sustains from poor ones. A New York dentist is said to have recently charged five thousand dollars for five days' work.

In estimating prices for dental work, time, skill, material, and the ability of patients should all have their influence; but if each operation is estimated by either or all of these considerations, prices will be so variable and so often dependent on the whims and physical and mental condition of the dentist that they will prove unsatisfactory.

5th—We think the better way is to have, as far as possible, fixed prices for specific operations, and, as a rule, adhere to them. There will be, sometimes, in scheduled items, unusual labor, time and expense which should receive extra reward, and other cases where phi-

lanthropy will forbid charging any, or but partial, recompense; but these will be exceptions. Fixed prices for specific work will be found the most satisfactory, and generally quite as remunerative. As, for instance, in an ordinary country practice, where living is comparatively cheap, take the following as an approximation:

Extraction, 50c.; gas, extra, $1.00 per tooth; cleaning teeth, from $1.00 to $3.00; treating exposed pulp, $1.00 to $2.00; treating alviolar abscess, $1.00 to $5.00; alloy filling, $1.00—extra size, $2.00; dentine or gutta-percha filling, 75c.—extra size, $1.00; gold filling, small size, $2.00—ordinary size, $2.50—large size, $3.00 to $5.00; compound, or building up with gold, $6.00 to $10.00; artificial teeth on rubber or celluloid, one tooth, $5.00—for each extra tooth to ten, $1.00; ten teeth, or a full set, $15.00; upper and lower set, $25.00.

THE POOR DENTISTS' RECREATION.

Recreation is not necessarily idleness, nor ever leisure. It may be vigorous work of a radically different kind to the daily routine of the office. Swimming in the ocean, climbing the mountain or sporting with the fishes or the birds are all pleasant. But, often, the dentist's purse will not allow him to board at an hotel at from fifteen to thirty dollars a week.

Some time since, we knew a minister who had "run down" by too close studying. He was "thin as a shad" "as nervous as a woman" and "as irritable as a porcupine." His church sent him to the sea shore. After spending seventy five dollars at a first-class summer resort he came back none the better but rather worse. It was not the cold water of the ocean nor the indolence of the hotel he needed, but the wholesome brawn to be gotten by the glow and sweat of downright hard work. He went out into the country and, taking off his kid gloves and his sunday-go-to-meeting-clothes, donned the garb of a farmer and went to work with scythe and rake, hoe and plow, axe and grub-hook; lived on good, coarse, wholesome, sensible food, drinking in the rain and sunshine. He came back all aglow with health and spirits.

The extraction of the cuspids produces such a change in the features that they should be allowed to remain, whenever practicable. Even when the question is between a partial and a full set, the former should often be preferred, if by this means we can save the cuspids.

There can be no contraction of the jaws, as the result of the extraction of the teeth. The roots of the teeth do not enter the jaw, and therefore, their removal does not effect it. It is simply an absorption of the alviolus that gives the change in the appearance of the mouth we see after tooth extraction.

MAKE YOUR MARK.

Do not be contented to drift through life as flood wood, being moved only as you are moved upon, and then only as useless drift. Wake up! Put in activity the dormant life within you. Pick yourself up and get where you can be used and be useful. Get standing room, and see and show your individuality. Be distinctively something somewhere. Perhaps, at best, you are a crooked stick, and not very sound; but there is some use to which you can be put. Perhaps you cannot be great or do great deeds, but you can do something. In the mighty whirl of the wheels of His providence, God has a place for you. Fill it. Your presence and activities just there are important. There you may make your mark. Though it may be a small work, and a small place, made only for a small man, yet be willing to fill it, and to fill it to the best of your ability. If you are faithful your influence will be felt; your work will tell; it is not for you to tell its importance. The place was made for you—you were made for the place; out of it you are out of joint; in it, acting well your part, "all things work together for good."

It is not always the most conspicuous, or the most wealthy and self-important, that are the greatest benefactors in the world. Many a man who thinks himself great is of little use; his whole record fades away with his life. And many other men who suppose themselves insignificant and useless, are unconsciously throwing out scintillations of light and power that charms and improves their whole sphere.

Patiently, quietly, contentedly do your life work; do it carefully, faithfully, thoroughly; and the world will be the better for your having lived in it. When your work is done, you shall hear the plaudit of the master: "Well done, good and faithful servant."

Make your mark. Make it so plainly that those coming after will see it, and be guided by it into like paths of usefulness and honor.

A tooth in the trachea, or windpipe, and its successful removal.—A physician in New York lately extracted a lower, third molar, under ether. The instrument used was a Physick's forceps, which has beaks so constructed that upon their closure the tooth slips up out of its socket. As this tooth was thus thrown out it slipped down the trachea. The woman went to a hospital, where the windpipe was opened and the tooth removed. In the operation much trouble was experienced, till the device was resorted to of doubling a wire to form a loop, which was carefully pushed down beyond the tooth, and then brought up, happily with the tooth in the loop, at the first attempt. The woman is doing well.

Save the first Molars. We often blame parents for supposing them to be temporary teeth; and yet many of us who are dentists, act as though they were the most temporary and useless of any in the mouth. Said a dentist, a short time since, "I don't know what the Lord made them for." On the contrary, we believe them to be the most important of the molars, and when the first and second molars are equally involved in decay we prefer the loss of the second to the first molar; for its loss makes less change in the features and in the position of the teeth; and, generally, the wisdom teeth come forward and nicely take the place of the second molars, thus restoring the full masticatory surface. The first molars come at a time when they are specially exposed to the acids consequence upon the absorption of the temporary teeth, and are often considered inherently defective, when the fault is in their surroundings. Their judicious treatment during this time, and placing them in good condition after this critical period, will generally insure their permanent health and usefulness.

Soft food, for babies who have no teeth; but as these babies begin to show their teeth we should begin to show them something hard to chew. Teeth were put in their mouths to work. If they are kept in forced neglect by having nothing hard to work upon they will lack firmness and maturity, and the whole jaw will be undeveloped. Do not be afraid of their chewing a little gum, or root licorice or, still better, some good, hard crackers or tough crusts of bread. If you would ensure them strong, clean, sound teeth in a well formed dental arch, do not keep them on soft, pulpy food.

The extraction of the temporary teeth is often deplored on the ground that it causes the absorption and consequent contraction of the alviolus. Is not this an error? There may be a slight absorption, if the permanent tooth is not near, but this is a trifle, if any, cause for the change of the alviolar ridge. The injury is a retarding of its development. This is a serious injury; for it presents us with many of our dwarfed mouths in persons with otherwise well developed bodies. There is not nearly room enough for the thirty two master workmen. The consequence is they are crowded into irregularity in almost every direction.

"*Saved by the skin of his teeth*" is a trite expression which to most will not allow very strict analysis. For, really, have the teeth any skin? We think most will answer, no; we answer, yes, and that it is an important covering. It is not as thick as the skin of the finger but quite as essential. It is a hard, vitrified, glossy, almost transparent membrane, giving to the tooth its peculiar resistence to abrasion, and its life like pleasant, laughing expression.

Does the alviolar ridge contract alike on the upper and on the lower jaw, as the result of extracting teeth? At first thought this may seem a foolish question. Most will reply, of course it does. But reflect a moment, and you will see there is not only a difference, but that this difference causes a marked modification in the change of the features. The plates of the roof of the mouth are not changed by the extraction of the teeth; there is no alviolus in these to be absorbed, and the jaw bones in neither jaw are changed by the loss of teeth. The whole change in the upper jaw is from the absorption of the alviolus on the outer edge of the roof-plate—a contraction inward. In the under jaw, the alviolus extends equally on the outer and inner sides of the teeth, and, as both are absorbed, the change leaves an almost flat plate of bone.

Loosening of the teeth is not often, if ever, caused by tartar. The tartar—generally the sanguinous—is the result of the degeneracy of the tissues surrounding the roots of the teeth. This breaking down of the tissues produces both the tartar and the loosing of the teeth.

"*Familiarity breeds contempt*" is as true in the dental office as any where else. While a dentist should avoid austerity, he must maintain dignity, refrain from that silly lightness of demeanor, and those frivolous nonsensical remarks, which betoken littleness. We cannot afford, even as a diversion from pain, to compromise our self respect. Patients may not resent undue familiarity at the time, but their future absence, and their influeuce with others, may be quite as keen a reproof.

Dentine Fillings for covering exposed nerves, or obtunding sensitiveness, should be mixed thin and worked into a nice, smooth, stiff cream, so that it will adhere to the walls of the tooth. Some prefer this consistency for the body of a filling that is designed to be more permanent: nearly filling with this, and then adding some that is mixed very stiffly. There is no doubt that the proper maniputation of dentine has much to do with its efficiency. And though it cannot yet be considered a permanent filling, it has been so improved that it is surprising its most sanquine advocates.

"It is a signifecant fact that toothache is almost exclusively an affliction of the northern nations."—Felix. L. Oswald, M. D., in Pop. Sc. Monthly.

If dentists showed such ignorance of diseases in medicine as physicians often show of the facts in Dentistry, they would be the laughing stock of the world. It adds to our surprise to see such foolish statements in such a place as the Popular Science Monthly.

On temperance men do not differ so much in principle as in practice. All consider intemperance a vice, and temperance a virtue. Even total abstinence is urged by all for those who cannot control their appetite. The trouble is, while men of every class and grade, deplore intemperance, there are men who believe they can be temperate on the road to intemperance. They see others all round them gradually changing for the worse, and those just beyond them falling into drunkard's graves, but they do not see this awful change taking place in themselves. If any do wake up to the woful fact that they are slaves, driven in this road to their slaughter by their irresistable appetite, they also soon realize by their desperate efforts to free themselves that they are bound, with a master's whip goading them on. They have now no controversy with the total abstainer. If at a single bound they could free themselves, what a desperate bound that would be? But like the confined dog in his kennel, at his most desperate leap, he is thrown back by his galling chain. There is a power which can break that chain. There is an inspiration that can raise them above themselves; or rather, can so change them that appetites for the wholesome and the good shall be stronger than even this demon. That will save them, renew them, and prepare them for life's true work and pleasures. Reader, are you free?

The pulp of the tooth is generally thought to be that mass of soft substance contained in its central cavity, and that the rest of the tooth is solid matter. This is erroneous. This apparently unorganized mass of pulp is composed largely of minute fibers which extend into the substance of the tooth. The tooth cannot, therefore, be a solid, crystallized substance, or, as a recent writer puts it "a lump of chalk, bound together by cement." The tooth, especially the dentine, is made up of delicate columns of tubes, through which these little fibers of the pulp run to all parts, giving it vitality, sensibility and nourishment. Though they are so minute they can scarcely be seen with the microscope, yet they are not only organized substance, but from their functions they must each contain all the paraphernalia of an organized tissue-plasma, a fluid for lubrication, an artery to convey nourishment, a vein to return worn out material, a motor nerve to carry vital ativity, a sensory nerve to bring to the brain impressions, and perhaps a sympathetic nerve gonglia which has its head quarters near the heart. No wonder the tooth is a sensitive organ, and that, when these little fibers become inflamed, it is terribly sensitive. Truly, we are wonderfully made.

Fermentation in the human mouth is the subject of quite an exhaustive treatise by Dr. W. D. Miller, Berlin, Germany. Address Independent Practitioner, Buffalo, N. Y. Price 50 cents.

Miscellaneous.

BODILY LOCATION OF HUMAN HAPPINESS.

Dr. B. W. Richardson, in *The Asclepiad,* treating of felicity as a sanitary research, observes: "The center of the emotion of felicity is not in the brain. The center is in the vital nervous system, in the great ganglia of the sympathetic, lying not in the cerebro-spinal cavities, but in the cavities of the body itself, near the stomach and in the heart. We know where the glow which indicates felicity is felt, aud our poets have ever described it with perfect truthfulness as in the breast. It comes as a fire kindling there. No living being ever felt happy in the head; everybody who has felt felicity has felt it as from within the body. We know, again, where the depression of misery is located; our physicians of all time have defined that, and have named the disease of misery from its local seat. The man who is miserable is a hypochondriac; his affection is seated under the lower ribs. No man ever felt misery in the head. Every man who has felt misery knows that it springs from the body, speaks of it as an exhaustion, a sinking there. He is broken-hearted; he is failing at the center of life; he is bent down because of the central failure, and his own shoulders, too heavy to be borne, feel as if oppressed by an added weight or burden. under which he bends as though all the cares of the world were upon him to bear him down."

Commenting on this the *Lancet* says that, in other words, felicity is a physical result of a brisk and healthily full circulation of blood through the vessels supplying the ganglia of the great sympathetic system of nerves; and whatever quickens and at the same time frees the flow of blood in these vessels particularly, engenders the feeling we call happiness. This is the fact, and we believe it explains that action of many articles of food and medicine and medical appliances. It moreover, explains and confirms the truth of the maxim which we have so often recommended for general adoption: "Be briskly, not languidly, joyous if you would be well." This is the converse of the doctrine that happiness is an affair of the heart and stomach. A comfortable, as contrasted with an austere, mode of life is the most natural, and therefore the healthiest and the best. We sometimes wonder why those who live by rule, and tremble as they live, laboring to eat and drink precisely what is "good for them," and nothing else, are so weakly and miserable. The cause of failure is that such persons are overcareful; life is a burden to them. They have no "go" in their mode of existence. One-half of the "dyspeptics" we see, and whose sufferings we are asked to relieve, would be *well* if they were only

happy. Everything in life and nature acts and reacts in a circle. Be happy, and your sympathetic ganglia will have the blood coursing through them with the bound of health; and this quickening of the pulse, if it be produced by "good cheer," whether at the table or on the mountain side, will, in its turn, produce happiness. Felicity is the outcome of a physical state. and that state is itself enhanced by the sort of cheerfulness which often consists in being happy in spite of circumstances.—*Scientific American.*

MIND IN ITS ALMOST SUPREME CONTROL OVER MATTER.

Mind, in its almost supreme control over matter, meets with barriers when it essays to perform creative acts. It has succeeded in evolving out of passive forms of matter energies which are destructive and appalling; it has changed the gentle warmth of our firesides into forms of electrical force, capable of moving ponderous machinery, and it has given it wings and endowed it with mute intelligence, so that it conveys messages of instruction, congratulation, warning, joy, and love with a rapidity which practically annihilates time and space. Out of the common sand of the sea-shore it has constructed prisms and lenses as clear and beautiful as nature's proudest gems, and so arranged them in tubes of metal that the heavenly bodies are brought as it were into the laboratory for analysis, and the minutest forms of life hidden in the earth and air are revealed to the eye with the utmost distinctness. It has separated water and solids into gaseous conditions, and mingled them with the winds; has isolated and recombined rays of light so as to form the most gorgeous pictures; has forced the sun to serve as artist, and paint portraits and landscapes; has extracted from the filthy residuum of the gas manufacturer colors more beautiful than those of the rainbow; has synthetically combined molecules of inert matter so as to represent organic products of the highest complexity. All this and much more has mind accomplished, but it has never been able to create a new element or add a single atom of matter to the primitive mass of earth and air.

Whenever man has experimented with the view of so arranging matter as to evolve from it life, signal failure has attended his labors. The belief, which at one time prevailed, that from liquids and sterile infusions, placed under favoring conditions, life is spontaneously produced, has now few supporters among men of research. Dr. Bastian, who experimented over a period of many years, and who persistently maintained that from his infusions bacteria and other forms of life were spontaneously produced, has been confronted with the careful and protracted researches of Tyndall and Pasteur, and his alleged succesful results have been disproved. Tyndall, to escape from the

germ-charged air of cities and populous districts, fled to Switzerland, and on the highest mountain peaks conducted his experiments. The results conclusively proved that the development of life in Bastian's infusions came from germinal nuclei in the atmosphere, as absolutely sterile liquids exposed to the pure air of high altitudes remained sterile under the most favoring conditions. Pasteur confirmed Tyndall's results by a long series of careful and trustworthy experiments. Man is thus shown to possess wonderful capabilities in controlling and changing matter, but the power of *creating* is a prerogative withheld from him. His agency in reproduction is no more direct or exalted than that of the lowest animals and reptiles. The reproductive instinct is given not only to all living forms of animals and insects, but to plants as well. Its exercise requires no training of the intellect, no elevation of the moral faculties; savage man was as capable of covering the earth with a race of men, ignorant and debased, as is the most civilized and cultivated people with one elevated to a higher plane. Modify or remove the overmastering reproductive instinct in animal and vegetable organisms, and all forms of life would at once cease. It is the strong chain which binds the animate to the inanimate—a chain whose links are of steel, which no power short of that of the Infinite One can break.

The embryotic changes resulting in the development of man, research has shown to be in no regard dissimilar to those which result in introducing into the breathing world the lower types of mammals. He is born helpless and absolutely dependent upon those through whose natural agency the spark of life was engendered; and, like all animals, is indebted for his preservation to the overpowering maternal instinct bestowed through a wise controlling power higher than that of man. Every stage of man's progress toward full development, from the microscopical cells of the latent germ, is marked by a superintending agency which must be divine. It cannot be denied that it is all accomplished under law, but the laws themselves are miracles of wisdom—a wisdom not born of earth.—*Whence, What, Where.*

HOW TO REAR GOLD FISHES.

Gold fish are very easily bred, with attention to a few simple rules. They will, at the proper season, spawn in aquaria as well as in other places of abode; but unless the spawn is speedily removed from the tank, the older fish will devour it. This has probably been one of the causes of failure with many. Another source of failure with amateurs in this field is the neglect to give the fish an abundance of proper food, and to disturb them as little as possible. If the following plan is adopted, it will rarely fail of success: In the spring or early summer, arrange a wooden tank—which is better than glass, as

the fish have opportunity of concealment, and the conditions more nearly approach those of nature—in which place a lot of green fresh-water plants and four or five gold fish, say from three to four inches long. Among these the probabilities are strong that there will be at least one or two males. Feed them regularly morning and evening on very little oatmeal or chopped meat, and disturb them as little possible. By occasionally observing the fish, the swelling of the females will shortly be noticed, and when they are seen to be big with eggs, keep a close watch on the actions of the fish. If they are seen to be flitting about on the surface of the water among the plants, they are probably spawning. The plant must be examined every day, morning and evening, to see if the spawning has actually taken place. The female attaches her eggs to the leaves of the plant, to which, being sticky, they adhere, and the male, following her, impregnates them. They appear little, transparent, amber-colored spheres, about the size of mustard seed. The slips of plant to which eggs are seen to be attached should be removed and transferred to a shallow vessel filled with fresh water, and kept in some cool place until they hatch out, which will be in from three to six days. When the young fry have become large enough to swim freely, they should be transferred to more roomy quarters with some plants, and fed on the animalcules which may be found in any stagnant water, and which may be obtained by the use of a very fine gauze net. Care should be taken not to admit large larvæ into the vessel with the young fish, as they would be devoured. After the fish have grown to be half an inch or so in length, they may be fed on pulped meat, which they eat greedily. They will soon also take kindly to oat meal. The mortality among the young is very great, probably only about one in ten of those hatched out surviving in spite of the best care. Nevertheless the female goldfish lays several thousand eggs in a season as the spawning continues at intervals all through the summer, so that without trouble several hundred young fish may be thus bred. They begin to get their golden or silvery color at variable periods, some as early as two or three months, and others not before a year. If properly fed, they should grow to be two or three inches long in a year.—*Manufacturer and Builder.*

TREATMENT OF BURNS AND SCALDS.

Dr. C. F. Naismith writes to the *Lancet* that he has secured most excellent results from the following method.

His invariable practice, however extensive the scald, has been to place the injured member in ice cold water, keeping it there until all pain had disappeared—say in from two to four hours, or even longer. The water heats rapidly, and must be kept cold either by ice

or constantly renewing. As long as the scalded part is kept under water (provided it is cold enough) no pain is complained of, and symptoms of shock are much lessened. When the limb will bear removal from the water without pain, he lays on thickly lead acetate and rosin ointment (one dram to one ounce) and envelops in cotton wadding. He has used this ointment also in erysipelas with the best results, all symptoms of inflammation rapidly disappearing. Should severe suppuration occur, instead of the lead acetate a few drops of creosote may be added to the rosin ointment, as recommended by Druitt. By this treatment pain and shock are reduced to a minimum, opiates are seldom required, and danger to life is, he believes, greatly averted.

CAST METAL PLATES.

(BY L. P. HASKELL, CHICAGO, ILL.)

For the lower jaw it is undoubtedly true that a "cast metal plate" of Watt's, Weston's or Reese's metals is the best method for a majority of cases, especially where, as is so often the case, the absorption has been so great as to leave nothing but a thin shallow ridge of membrane, always more sensitive than the upper jaw, and which has, in a measure, to adapt itself to the plate.

By this process there is insured a *better fit* than can be obtained by any other method, for it is cast to a non-shrinking model of plaster and pumice, or sand, or whiting. (I prefer the former.)

It is so often, in this class of cases, that plates have to be filed to relieve irritation; with this work it can be done without marring its appearance.

I like the method of casting the plate to a pattern formed of sheet wax, the edges doubled all around, so that, when finished, it has the appearance of a band, as the rubber is finished flush to that edge. Then file and partially finish, try in the mouth, and cut away where necessary; *spur* the surface with a sharp graver, and attach the teeth with pink rubber.—*N. E. Jour. Dentistry.*

MEETINGS OF DENTAL ASSOCIATIONS.

American Dental, Saratoga Springs, N. Y., August 5th, Dr. George H. Cushing, Secretary.

National Association of Dental Examiners, Saratoga Springs, N. Y., Friday August 8.

The Virginia convention meets at Norfolk, Tuesday, October 7th, Dr. C. A. Mercer, Richmond, President; Dr. J. Hall, Secretary.

The floating germ life of the atmosphere is greater in low countries than in mountainous regions, and least of all over the ocean.